Getting Started with Data Visualization: Tools for Research!

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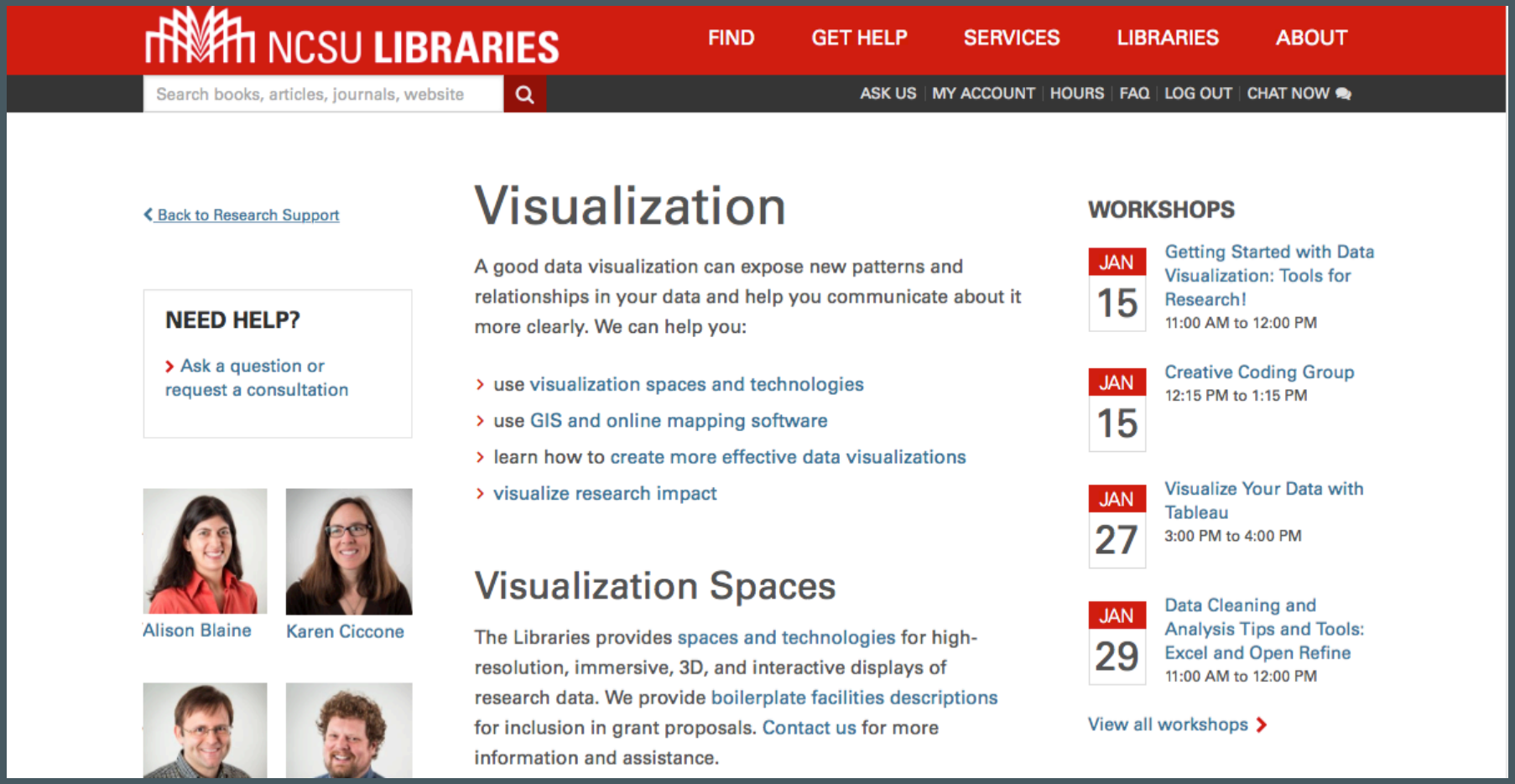
Alison Blaine / Jennifer Garrett

Data Visualization Services

lib.ncsu.edu/do/visualization



Goals

You should leave with:

- an understanding of various tools for doing visualization
- an understanding of the process for making good visualizations
- practice with two tools

If you have questions, please raise your hand!

Data Visualization Process

- getting data
- getting to know the data
- setting goals
- determining if a visualization is needed
- deciding what to visualize
- cleaning
- visualizing
- designing (potentially re-visualizing it with a different tool)
- exporting/embedding

Tools for Getting Started

Plotly
Tableau Public
Raw
Google Fusion Tables
CartoDB (for maps)
Voyant (for text)

Here's a curated list

Today’s workshop materials

go.ncsu.edu/startviz

Activity

Step 1: Getting data.

Now, we will go ahead and download the data.

Go to: go.ncsu.edu/startviz

Download the TopBabyNames.csv file to your computer

Step 2: Getting to know the data

Observe:

- What it's about
  - What is being measured?
  - What don't you know?
- Organization
  - Are columns and rows organized neatly and uniformly?
  - Does each cell have one value?
- Data types
  - What types of data are there? Dates, text, numeric?
  - Do any of those types need to be changed?

Classify the data:

- change over time
- measurements of different categories (Ex: population rate per county)
- geospatial
- hierarchical (categories and subcategories)

A	B	C	D	E
State	Gender	Year	Top Name	Occurences
AK	F	1910	Mary	14
AK	F	1911	Mary	12
AK	F	1912	Mary	9
AK	F	1913	Mary	21
AK	F	1914	Mary	22
AK	F	1915	Mary	23
AK	F	1916	Mary	18
AK	F	1917	Mary	21
AK	F	1918	Mary	27
AK	F	1919	Mary	22
AK	F	1920	Mary	38
AK	F	1921	Mary	36

Step 3: Determine your goal

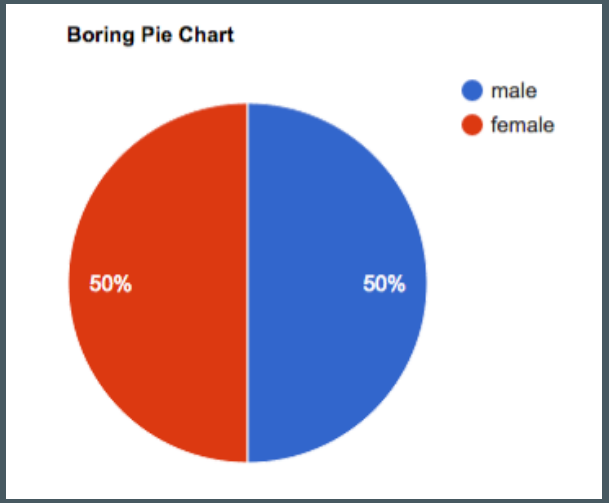
Source: Andy Kirk (2012). *Data Visualization: A Successful Design Process*, pg.32

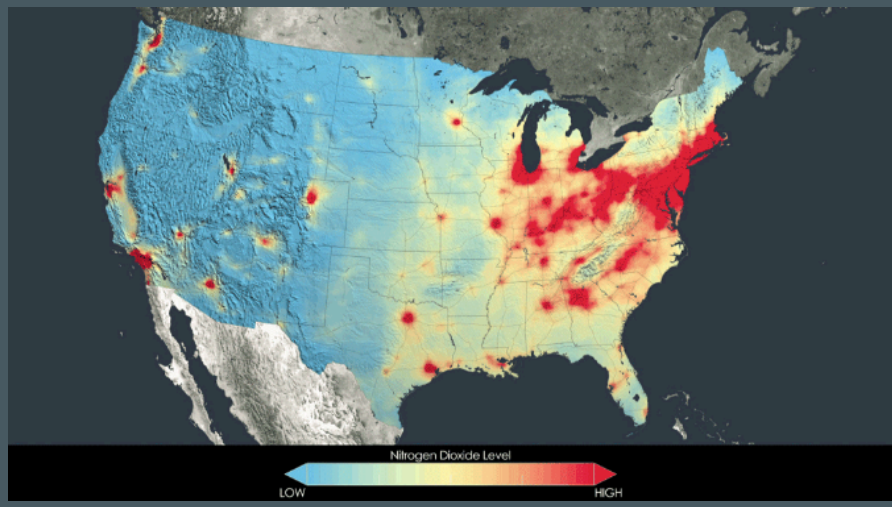
Step 4: Determine if a visualization is needed

Not all data needs to be visualized. Here are some questions to ask yourself:

1. Can the information be communicated without a visualization?

2. Do you need people to see patterns quickly from the data?





Source: nasa.gov

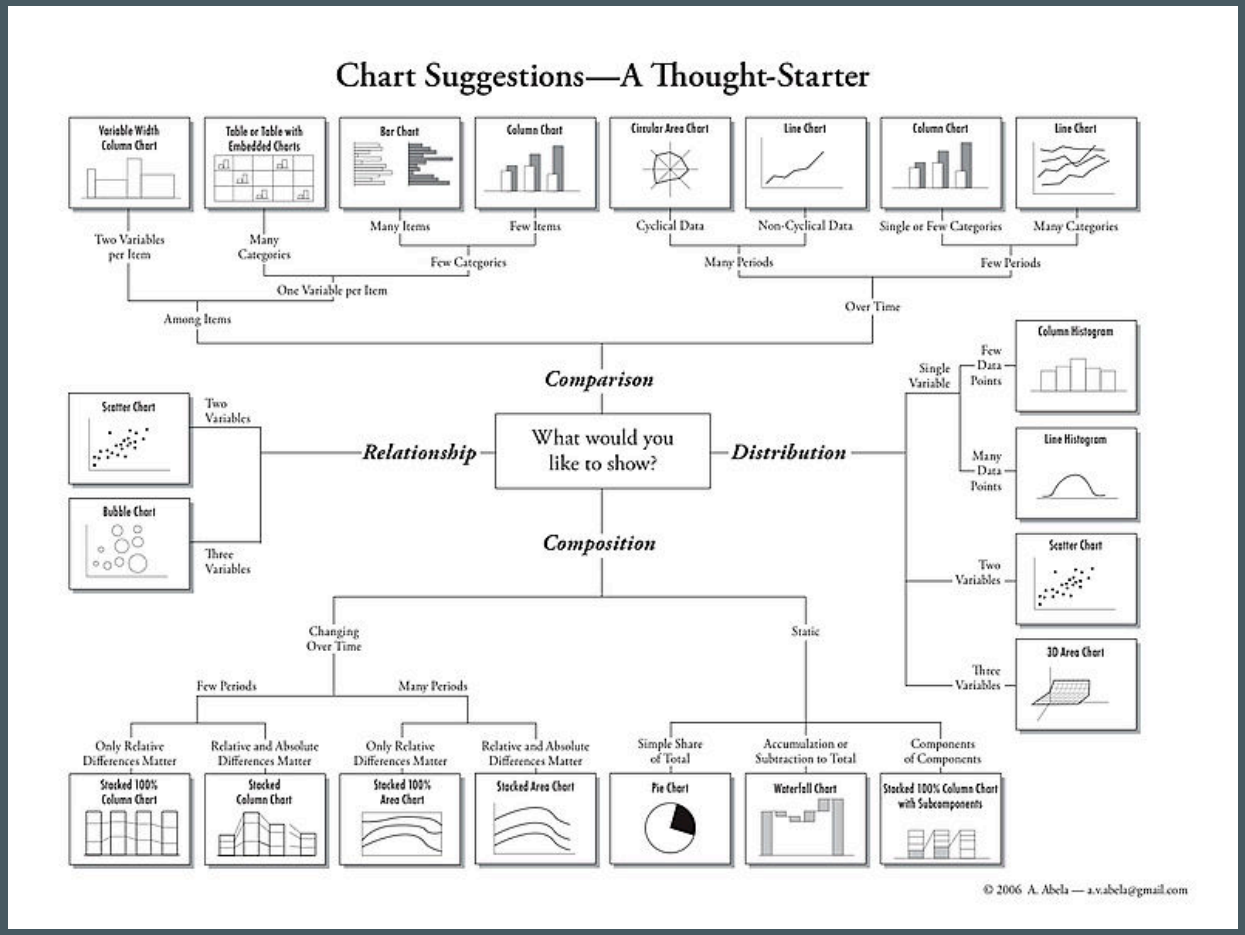
Step 5: Cleaning the data

Cleaning data means removing problematic characters, whitespaces, symbols, errors, missing elements and inconsistencies.

Raleigh
Raleigh, NC
Raleigh, N.C.
Raleigh, NC 27695
Raleigh, NC USA

Step 6: Visualizing the Data

Plan the Visualization: Choose chart type!

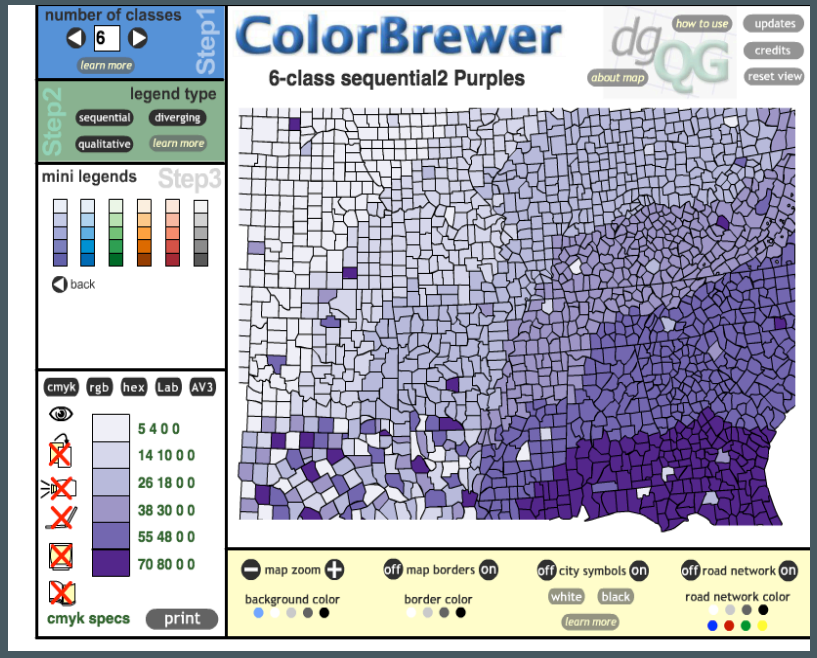


A. Abela (2009)

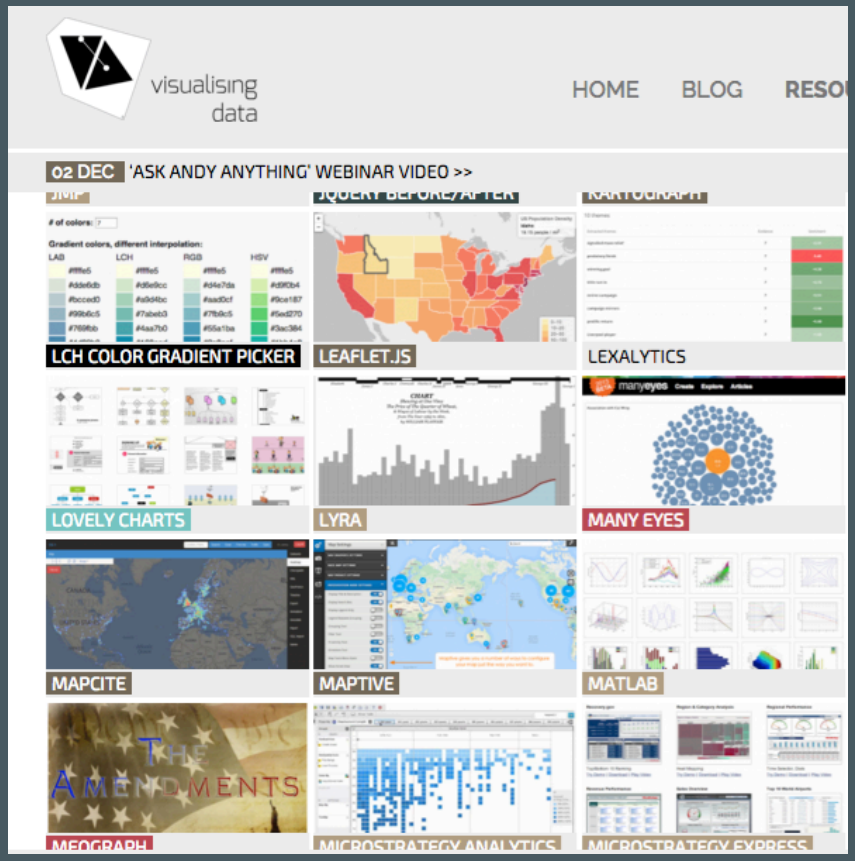
Additional considerations:

a. Color choice is important.

ColorBrewer: colorbrewer2.org/



Visualising Data:
www.visualisingdata.com/resources



The Tools!


+ableau+++public

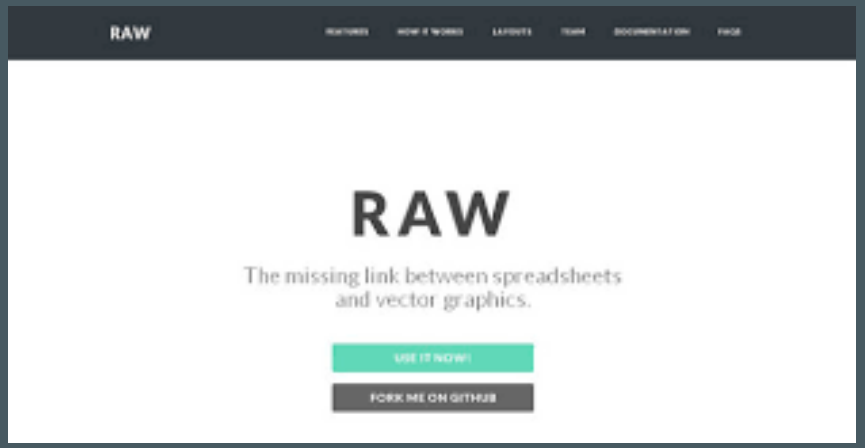

RAW
RAW
The missing link between spreadsheets
and vector graphics.
FORK ME ON GITHUB

Tableau www.tableau.com

Interactive data visualization and analytics application

Free and paid versions

Tableau Public is free for everyone

Tableau Desktop is free for students (http://www.tableau.com/academic/students)

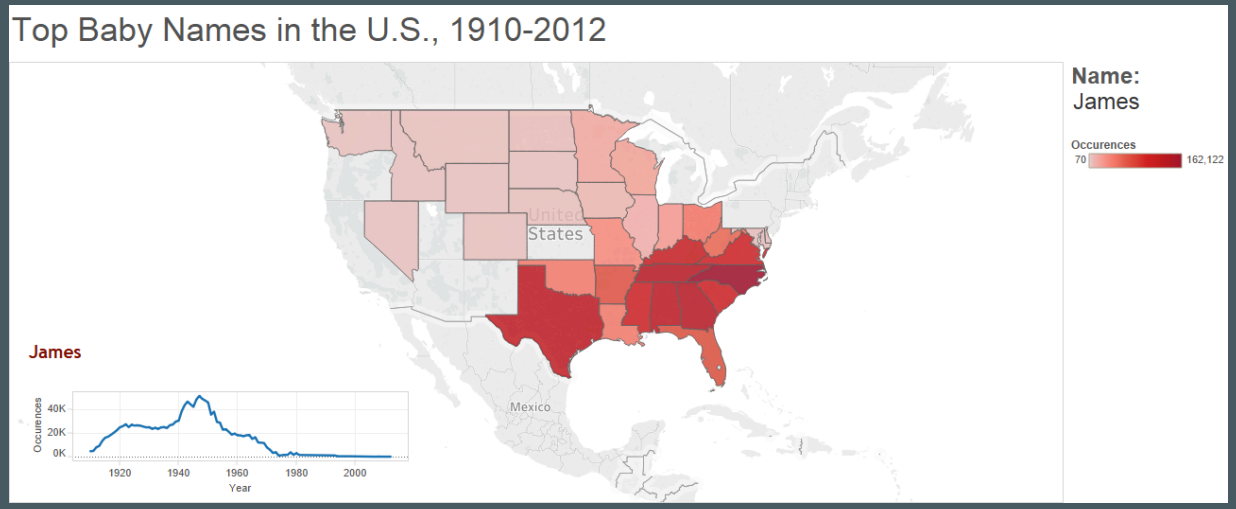
You can create and share graphs, maps, live dashboards

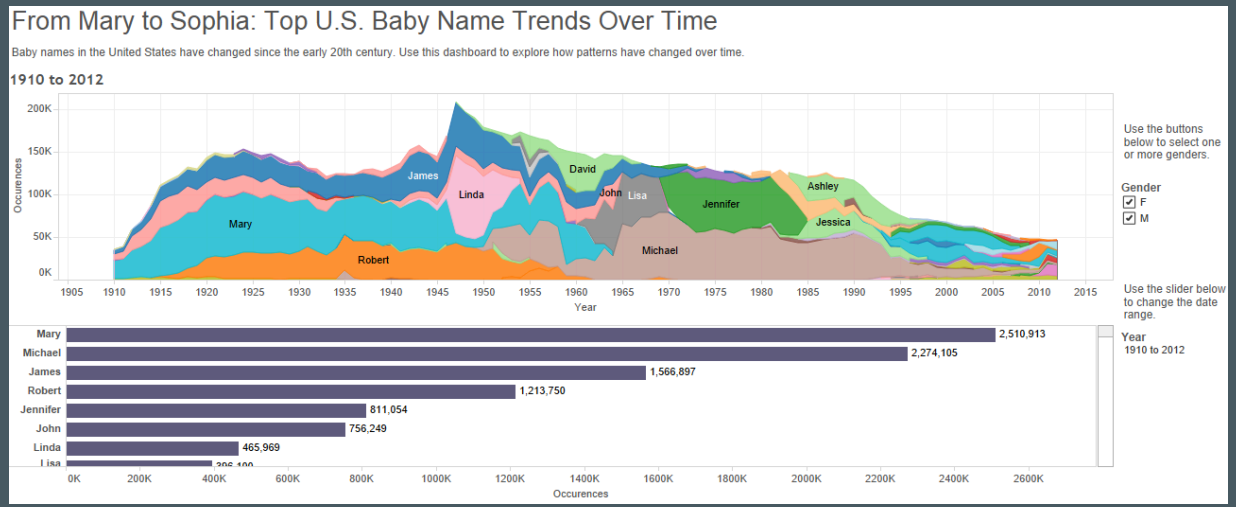
Tableau examples

chart types:

- Line
- Bar
- Map
- Flow

dashboards





How to Use Tableau Public

Go to this website and create your own account: public.tableau.com

Download and install the application!

Gallery: public.tableau.com/s/gallery

RAW

app.raw.densitydesign.org

Nice exploration tool

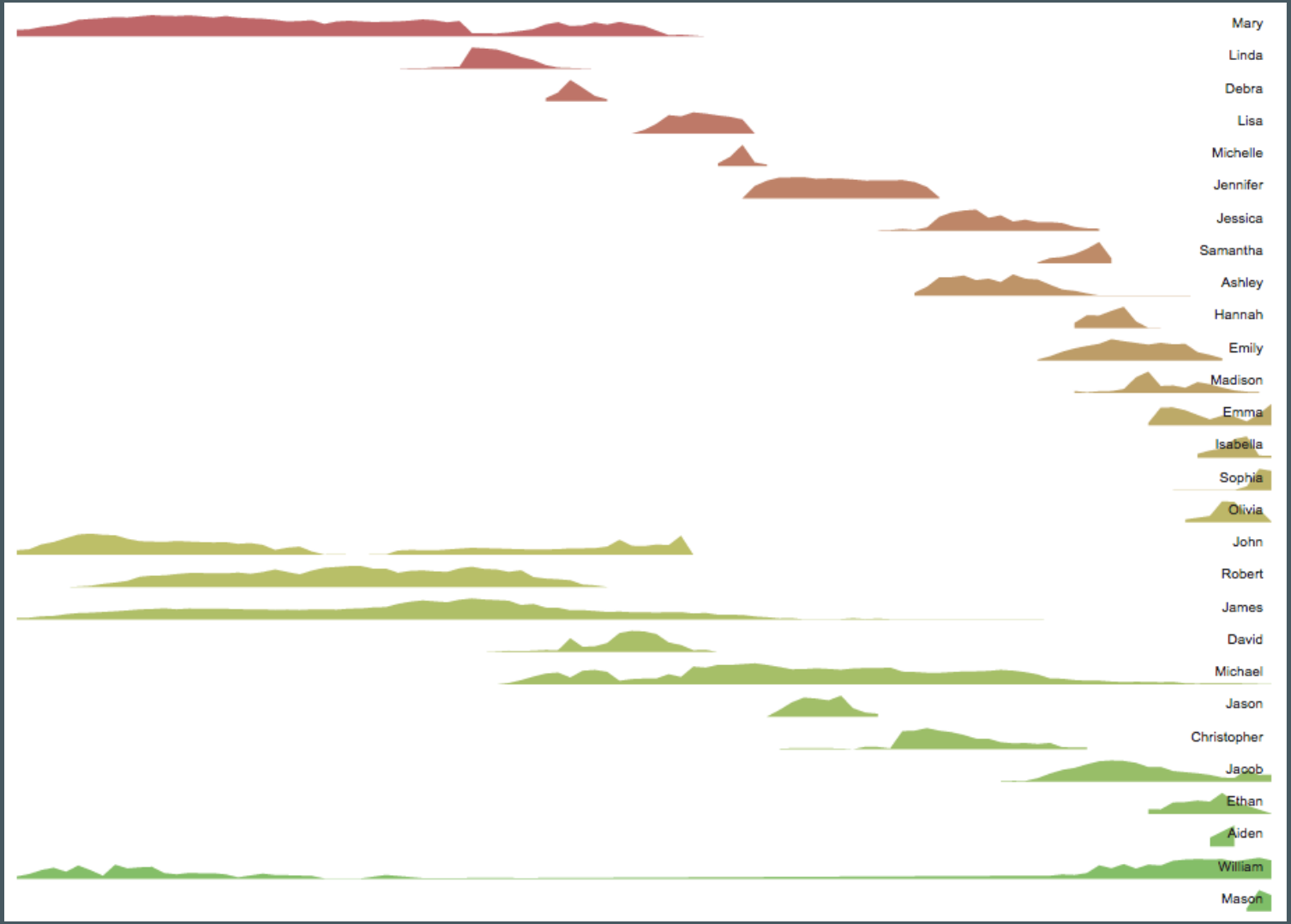
Allows you to make complex chart types

Limited functionality

Data is only in your browser - not stored anywhere

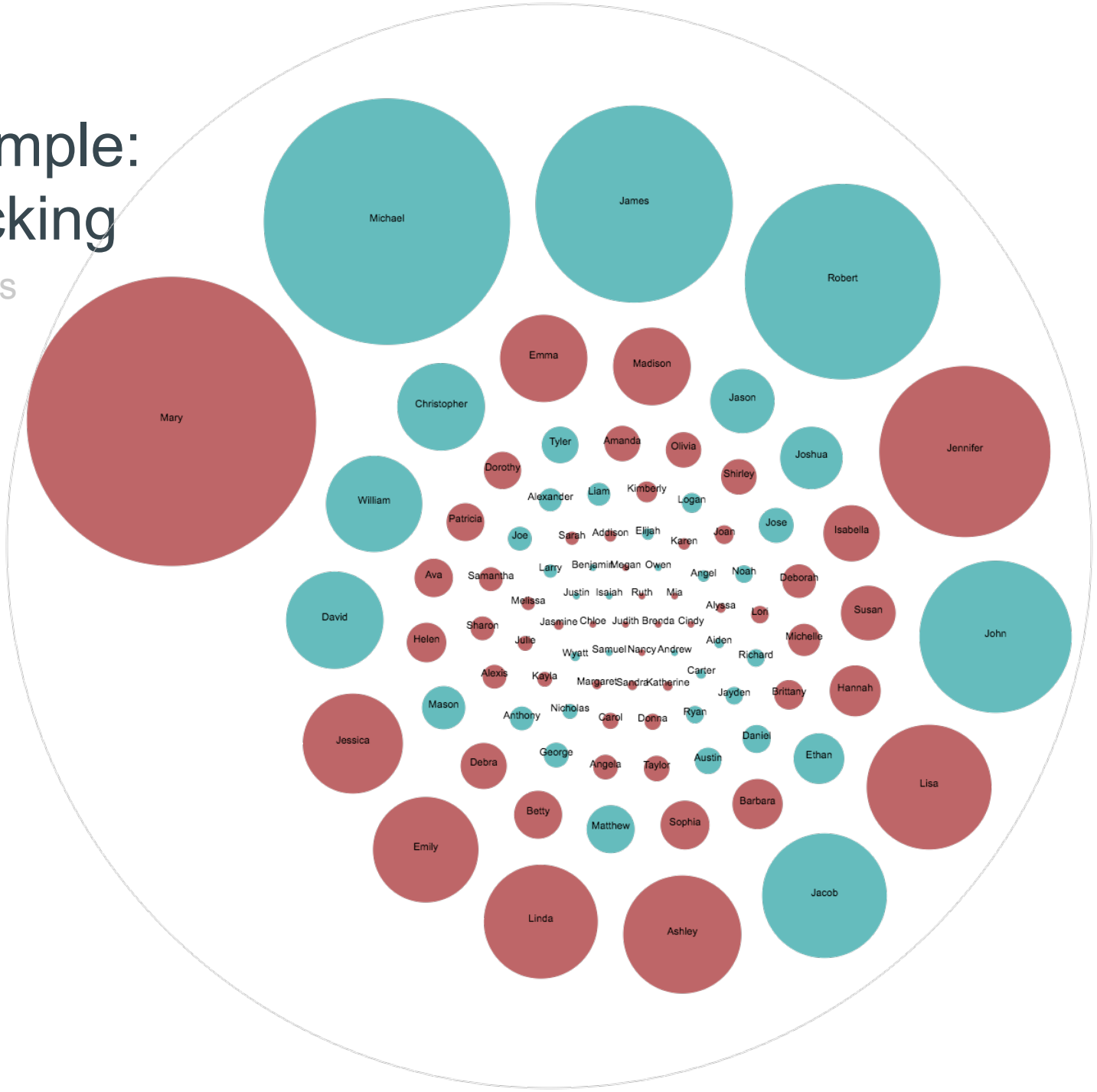
Download: .png, .svg, json

RAW example: small multiples



RAW example: Circle packing

Top Baby Names in US, 1910-2012



Contact:
Alison Blaine
ablaine@ncsu.edu